WHAT IS CLAIMED IS:

	1. A filler neck for receiving a fuel supply nozzle for a motor				
	vehicle fuel tank comprising:				
	a one-piece seamless funnel member having a tubular body				
	defining in off-set axial relation to each other a relatively large inlet opening adapted				
	for attachment to a receptor for positioning the nozzle with respect to the large inlet				
	opening and a relatively small necked down outlet opening adapted for attachment				
	to the inlet of an elongated tubular member in communication with the fuel tank, the				
positioning of the nozzle in combination with the offset axial relation inducing					
	sufficient swirl to the fuel being supplied so as to create a sufficient vacuum to				
	prevent fuel vapors from escaping into the atmosphere.				

- 2. The filler neck of claim 1 wherein the inlet opening is rolled over to create a surface to seal to the gas cap.
- 3. The filler neck of claim 1 wherein the small necked down outlet opening is barbed to adapt the opening for attachment to a plastic tube insert.
- The filler neck of claim 1 wherein the small necked down outlet opening is formed into a hose bead to adapt the opening for attachment to a hose.
- 1 5. The filler neck of claim 1 further comprising a vent hole 2 adapted for connection to a fuel tank vent tube.
 - 6. The filler neck of claim 1 including the receptor and wherein the funnel member is drawn and provided with an attachment portion adjacent to the inlet opening for attaching the receptor to the funnel member.
- The filler neck of claim 1 including the inlet of the elongated member and wherein the funnel member is joined to the elongated member inlet by a braise.

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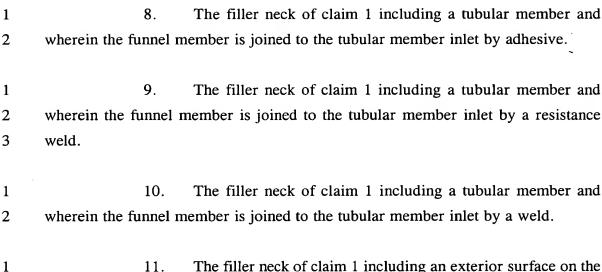
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1 11. The filler neck of claim 1 including an exterior surface on the 2 filler neck and wherein substantially all of the exterior surface of the filler neck is 3 provided with an anti-corrosive coating.

12.

a relatively large diameter section forming the inlet opening and a spaced-apart relatively smaller diameter tubular section forming the outlet opening wherein the axially offset large diameter and small diameter tubular sections are connected to one another by a tapered section which gradually blends from the large diameter section to the small diameter section.

The filler neck of claim 1 wherein the funnel member further

- 13. The filler neck of claim 12 wherein the tapered section intersects the large diameter section at an elliptically-shaped junction which lies in a plane inclined 60-85° from the axes of the tubular sections.
- 14. The filler neck of claim 12 wherein the funnel inlet opening has a diameter D_1 and the tubular section has a diameter D_2 with a coaxial offset at a distance X where $.1D_2$ is less than X which is less than $.3D_2$, and where D_1 is at least one and a half times D_2 .





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1	15.	The filler neck of claim 14 wherein the funnel inlet axial offset	
2	is sufficient to achiev	ve fuel swirl during fuel filling.	
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1	16.	The filler neck of claim 1 wherein the funnel inlet opening has	
2	a diameter D-1 and the	he outlet opening has a diameter D-2 where D-1 is at least one	
3	and a half times D-2.		
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1	17.	The filler neck of claim 16 wherein D_2 is less than 35 mm.	
1	18.	The filler neck of claim 16 wherein the D_2 is less than 30 mm.	
1	19.	A method of forming a filler neck for a motor vehicle fael tank	
2	comprising:		
3		deep-drawing a seamless funnel member having an elongated	
4	tubular body with a r	elatively large inlet at one end and a relatively small outlet at	
5	the opposite end.		
6		cutting a length of butt-seam tubing to form a tubular member	
7	of desired length;		
8		telescopically joining an end of the tubular member with	
9	respect to the outlet	of the funnel member to securely join the funnel and tubular	
10	members together;		
11		bending the tubular member to the desired shape; and	
12		attaching a nozzle receptor to the funnel member adjacent the	
13	funnel member inlet.		
1	20.	The method of claim 19 further comprising leak testing the	
2	filler neck to verify th	e integrity of joining the funnel member to the tubular member	
3	and the integrity of	attaching the hozzle receptor to the funnel member, and the	
4	integrity of the butt-seam tubing of the tubular member subsequent to bending the		
5	tubular member to the desired shape.		
1	21.	The method of claim 19 wherein the funnel member is joined	
2	to the tubules seemble	- by braining	

1	22.	The method of clash 19 wherein the fulfilet member is joined			
2	to the tubular memb	er by adhesive bonding.			
1	23./	The method of claim 19 wherein the funnel member is joined			
2	to the tubular memb	er by welding.			
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Sell	24.	A method of filling a gas tank with fuel from a tubular member			
\mathcal{N}_2	comprising:				
3 /		configuring at least a portion of the tubular member such that			
4 /	4/ the configuration induces a sufficient swirl to create a hollow passage for vention				
5	vapors from the gas tank during fuel filling; and				
6		filling the gas tank with fuel.			
1	25.	A filler neck for receiving a fuel supply nozzle for a motor			
2	vehicle fuel tank cor	nprising:			
3		a one-piece seamless funnel member having a tubular body			
4	defining a relatively large inlet opening adapted for attachment to a receptor positioning the nozzle with respect to the large inlet opening and a relatively si				
5					
6	6 necked down outlet opening adapted for attachment to the inlet of an ele				
7	ommunication with the fuel tank.				
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